

## **REMARKS**

Claims 1-16 are now present in the application. Claims 1, 3 and 13 have been amended. Claims 1 and 13 are independent. Claim 12 stands withdrawn from consideration as being directed to a non-elected invention. Reconsideration of this application, as amended, is respectfully requested.

### **Election/Restriction**

Applicants acknowledge the election of Group I, claims 1-11 in the reply to Restriction Requirement dated April 25, 2002. While not conceding the appropriateness of the Examiner's Restriction Requirement, if the remaining claims are found to be allowable, Applicant's will cancel non-elected claim 12 at that time. Applicants reserve the right to file a Divisional Application directed to the method of claim 12 at a later date if it is so desired.

### **Rejection Under 35 USC §112**

Claims 1-11 stand rejected under 35 USC §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

The Examiner asserts that the recitation "a large number of tips" is a relative term which renders the claim indefinite. While not conceding to the Examiner's rejection, but merely to expedite prosecution, claim 1 has been amended to specify that the number of tips are 20 to 4000/cm<sup>2</sup>. Accordingly, a definite value for the number of tips has been recited.

In view of the above amendments and remarks, Applicants respectfully submit that claims 1-11 are definite and clear. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §112, second paragraph are respectfully requested.

### **Rejections Under 35 USC § 103**

Claims 1, 3-8 and 13-16 stand rejected under 35 USC §103(a) as being unpatentable over Kobayashi et al., EP 0 926 288 in view of Laun, U.S. Patent No. 6,087,279. Claims 9 and 10 stand rejected under 35 USC §103(a) as being unpatentable over Kobayashi et al. in view of Laun as applied to claims 1, 3-8 and 13-16 above, and further in view of JP 2000-212866. Claims 2 and 11 stand rejected under 35 USC §103(a) as being unpatentable over Kobayashi et al. in view of Laun as applied to claims 1, 3-8 and 13-16 above, and further in view of Kakiuchi et al, WO 01/52713. These rejections are respectfully traversed.

The present invention is directed to a cleaning sheet which includes 10 to 90% by weight of thermoplastic fibers and 10 to 90% by weight of cellulosic fibers. The thermoplastic fibers have a fiber length of 2 to 15mm and a fineness of 10 to 150 dtex. Furthermore, a number of tips of said thermoplastic fibers are exposed on the surface of the cleaning sheet to have the capability of scouring or scraping dirt off of a soiled surface. The number of tips of the thermoplastic fibers is 20-4000/cm<sup>2</sup>. Independent claims 1 and 13 exemplify the above aspects of the present invention. Independent claim 13 requires the additional recitation "wherein said thermoplastic fibers are bonded at intersections thereof."

The cleaning sheet according to the present invention exhibits excellent scouring or scraping properties against soil. In addition, the cleaning sheet according to the present invention does not scratch a surface to be cleaned. Applicants respectfully submit that the references relied on by the Examiner fail to teach or suggest the present invention and therefore are unable to accomplish the advantages of the present invention.

In particular, Kobayashi et al discloses a nonwoven fabric and method for making same. The non-woven fabric includes cellulosic and thermoplastic fibers, which the Examiner asserts are present in the proportions claimed. The Examiner also recognizes that Kobayashi et al. fails to disclose the number of

tips and the fineness recited in independent claims 1 and 3 of the present invention. However, the Examiner relies on the Laun reference to make up for the deficiencies of Kobayashi et al. Applicants respectfully submit that it would not be obvious to modify the Kobayashi et al. reference in view of Laun as asserted by the Examiner.

#### The Recitation of the Number of Tips

The Examiner's modification of Kobayashi et al. is not completely understood. Specifically, it is unclear from the Examiner's Office Action whether Kobayashi et al. is being modified in view of the Laun reference to include the number of tips, or whether the Examiner is relying on Kobayashi et al. alone for this modification.

In any event, whether the Examiner is relying on the combination of references or not, Applicants respectfully submit that the Examiner's modification would not have been obvious to one having ordinary skill in the art. We will discuss each of these possible positions of the Examiner below.

If the Examiner is relying on the Kobayashi et al. reference alone, Applicants submit that the Examiner has not established a *prima facie* case of obviousness, since the Kobayashi et al. reference is silent with regard to an awareness that the number of tips of thermoplastic fibers provides any

advantage to the nonwoven fabric. Specifically, Kobayashi et al. is not aware that the number of tips is a result effective variable. This awareness was determined by Applicants. "If there is no evidence that a person of ordinary skill in the art at the time of applicants' invention would have expected problem to exist at all, it is not proper to conclude that invention which solves this problem, which is claimed as an improvement of prior art device, would have been obvious to that hypothetical person." *In re Nomiya*, 184 U.S.P.Q. 607, 608 (CCPA 1975). In the present case, the Kobayashi et al. reference fails to recognize that optimizing the number of tips of thermoplastic fibers provides the advantageous cleaning results of the present invention. Accordingly, one having ordinary skill in the art would not have recognized that such a modification would provide any advantage to the Kobayashi et al. nonwoven fabric. In view of this, the modification proposed by the Examiner would not have been obvious to one having ordinary skill in the art.

In the Examiner's Office Action, the Examiner states "presumably the tips of the fibers at the surface of the fabric would be exposed and would have the capability of scouring or scraping dirt off of a surface ... With regard to the number of tips, it would have been obvious to have optimized the number of the thermoplastic fibers which are present on the surface of the cleaning sheet

since the thermoplastic fibers are included in the fabric in order to enhance the ability of the fabric to clean.”

First, with regard to the Examiner’s statement regarding whether there are tips in the nonwoven fabric of Kobayashi et al., Applicants submit that Kobayashi et al. is silent with regard to the nonwoven fabric having thermoplastic fibers with tips.

Second, to the extent there are tips of thermoplastic fibers in the nonwoven fabric, Applicants do not agree with the Examiner that Kobayashi et al. recognizes that the thermoplastic fibers are included in order to enhance the ability of the fabric to clean. Kobayashi et al. provides thermoplastic fibers and pulp fibers in the quantity and size mentioned in the description of Kobayashi et al. in order for protrusions to be formed in the nonwoven fabric by the projections 231 on the drum 230. The Kobayashi et al. reference is silent with regard to the thermoplastic fibers providing any enhancement in cleaning action.

In addition, it has been held that “[t]here must be a reason apparent at time invention was made to person of ordinary skill in the art for applying the teaching at hand, or use of teaching as evidence of obviousness will entail prohibited hindsight.” *Id.* at 608. This is exactly what the Examiner is doing in the present case. The Examiner has not provided any evidence that the

prior art recognizes that the number of tips of thermoplastic fibers will affect the cleaning ability of the nonwoven fabric and therefore one having ordinary skill in the art would not know to look for a solution by optimizing the number of tips of the thermoplastic fibers. Accordingly, the Examiner is conducting prohibited hindsight.

Furthermore, "a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified." *In re Sponnoble*, 160 U.S.P.Q. 237, 243 (CCPA 1969). Accordingly, the Examiner must first provide evidence that one having ordinary skill in the art was aware of a problem before the Examiner can modify a prior art reference to arrive at the present invention. Since the Examiner has not provided evidence of an art recognized problem, the Examiner's rejection is improper and should be withdrawn.

In view of the above, Applicants submit that the Examiner's position that it would be obvious to optimize the number of tips in Kobayashi et al. is without basis. Since the prior art does not recognize that the number of tips can affect the cleaning action of the nonwoven fabric, one having ordinary skill in the art would not know to "optimize" the number of tips as asserted by the Examiner. Accordingly, the Examiner's rejection should be withdrawn.

To the extent the Examiner is relying on the Laun reference to modify the Kobayashi et al. reference to include the number of tips recited by the independent claims of the present invention, Applicants submit that the Examiner's modification would not have been obvious to one having ordinary skill in the art. Specifically, Laun discloses a nonwoven material having structures 4 and 5 formed on a surface thereof. The structures 4 and 5 are formed by needling. Referring to Figure 4 of Laun, the structures 4 and 5 are in the form of loops 14 or open loops 15. It is presumed that the open loops 15 of Laun are considered by the Examiner to be the tips of thermoplastic fibers of the present invention. If this is not the Examiner's position, it is requested that the Examiner clarify the rejection, if the Examiner still believes that the claims are properly rejectable in view of the Kobayashi et al. and Laun references.

Although not entirely clear from the Examiner's rejection, to the extent the Examiner believes it is obvious to include the structures 4 and 5 in the nonwoven fabric of Kobayashi et al., Applicants respectfully submit that such a modification would not be obvious. The main reason for this is that the structures 4 and 5 of Laun are formed by needling. It would be impossible to needle the wet laid material of Kobayashi et al. to include such structures. Needling is only performed on air laid materials that have a sufficient fiber



length. Since Kobayashi discloses a wet laid material with very short fibers, it would not be possible to needle the web of Kobayashi.

Further to this, in order to form the loops 14 or open loops 15 of Laun, it would be necessary to provide fibers that are much longer than the fibers of the presently claimed invention. Specifically, the present claims require the fibers to have a length of 2 to 15 mm. It would not be possible to needle the nonwoven fabric of Kobayashi et al. having a fiber length of 2 to 15 mm in order to form the loops 14 or the open loops 15 of Laun thereon. Applicants have filed a Declaration under 37 C.F.R. § 1.132 by inventor Shusuke Kakiuchi on even date herewith. This Declaration indicates that needling is not performed on wet laid materials and needling requires fibers longer than 15mm. Since the fibers in the present invention, and therefore the fibers in Kobayashi et al. are between 2 and 15 mm, Applicants submit that the Examiner's modification would not be possible. In view of this, Applicants submit that the Examiner's modification would not have been obvious to one having ordinary skill in the art.

The Recitation of the Fineness

Independent claims 1 and 13 also require that the fineness be between 10 and 150 dtex. Applicants submit that it would not be obvious to modify the Kobayashi et al. reference as proposed by the Examiner.

As explained in the Amendment dated September 25, 2002, 10 to 150 dtex is converted to denier of 9.1 to 136d. Since Kobayashi et al. discloses 0.1 to 0.8d, the Kobayashi et al. reference fails to disclose the fineness required by the independent claims of the present invention.

In the Examiner's Office Action, the Examiner recognizes that Kobayashi et al. fails to disclose the fineness of the present invention. However, the Examiner relies on Laun in order to modify Kobayashi et al. to arrive at the presently claimed invention. Applicants submit that the modification by the Examiner would be contrary to the teachings of Kobayashi et al. and therefore would not be obvious to one having ordinary skill in the art.

Referring to column 4, lines 29-34 of Kobayashi et al., it is stated:

The nonwoven fabric 31 obtained by the method illustrated in Fig. 3 can reproduce the configurations of the forming elements 34 with a relatively high precision because both component fibers 3, 4 are relatively short, on [the] one hand, and the synthetic fibers 3 [have] a relatively low fineness as well as a relatively low rigidity

Taking the above into consideration, it is clear that Kobayashi et al. requires very fine fibers in order to make the nonwoven fabric. If the Examiner were to modify the Kobayashi et al. fabric to increase the fineness of the fibers, Applicants respectfully submit that this would be contrary to the teachings of the reference. Specifically, the protuberances in the nonwoven fabric of Kobayashi et al. would not be properly formed, since fibers within the range of 0.1 to 0.8d are necessary to form the protuberances.

In addition, as mentioned above, the Laun reference discloses a dry-process material. As explained in the Declaration of inventor Shusuke Kakiuchi, needlepunched (dry-process) and wet laid materials are very different. Accordingly, one having ordinary skill in the art would not look to a dry-process material to find a solution to a problem in a wet laid material such as that of Kobayashi. Therefore, the Laun reference is non-analogous to the wet laid nonwoven of Kobayashi.

Further to this, if one were to consider the difference in fineness between the presently claimed invention and Kobayashi et al., it would be readily apparent that the difference is substantial. Specifically, it would be necessary to increase the fineness of the fibers of Kobayashi et al. by ten (10) times in order to arrive at the fineness of the present invention. Accordingly, Applicants submit that such a modification would not be obvious, especially if taken in

conjunction with the fact that Kobayashi et al. specifically requires that the fibers be very fine and the fact that the nonwoven fabric of Kobayashis is wet laid and not air laid.

In view of the above, Applicants respectfully submit that the Examiner's rejection in view of the Kobayashi et al. and Laun references is unreasonable. Accordingly, the Examiner's rejection should be withdrawn.

With regard to dependent claims 2-11 and 14-16, Applicants respectfully submit that these claims are allowable due to their dependence upon allowable independent claim 1, as well as due to the additional limitations recited by these claims.

For example, dependent claim 3 requires that the cleaning sheet be formed by an air-laid web. Referring to column 2, line 5, Kobayashi et al. discloses that the nonwoven fabric is made from a wet sheet (wet laid). Since this reference fails to disclose an air laid nonwoven fabric, Applicants respectfully submit that the Kobayashi et al. reference fails to disclose the invention according to claim 3. An air-laid web would have a different structure than that of the wet-laid web of Kobayashi et al. Accordingly, the Examiner's rejection of claim 3 is improper and should be withdrawn.

In addition, dependent claim 3 requires that the fibers be bonded at their intersections. Referring to column 2, lines 46-48 of Kobayashi et al., it is

stated that “[i]t should be understood that none of binding agents such as poval is employed in making the nonwoven fabric.” In addition, the Examiner states at page 2, paragraph 2 of the Examiner’s Office Action that “the fibers [of Kobayashi] are not bonded using bonding agents. Accordingly, the Examiner also recognizes that Kobayashi does not disclose bonding of the thermoplastic fibers at intersections thereof, as required by dependent claim 3 of the present invention. Since the fibers in the nonwoven fabric of Kobayashi et al. are not bonded, Applicants submit that the Examiner’s rejection is improper for this additional reason.

It should also be noted that independent claim 13 also recites that the fibers are bonded at their intersections. Therefore, the Examiner’s rejection of claim 13 is also improper.

With regard to the Examiner’s reliance on the J.P. ‘866 and WO ‘713 references, these references have been used to disclose the use of conjugate fibers or the use of crimped fibers and impregnating a sheet with an aqueous detergent comprising an electrolyte. Accordingly, these references fail to make up for the deficiencies of Kobayashi et al and Floden.

In view of the above amendments and remarks, Applicants respectfully submit that claims 1-11 and 13-16 clearly define the present invention over the

references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejections under 35 USC § 103 are respectfully requested.

### CONCLUSION

Since the remaining references have not been utilized to reject the claims, but merely to show the state of the art, no further comments are deemed necessary with respect thereto.

If any questions remain regarding the above matters, please contact Applicant's representative Paul C. Lewis (Reg. No. 43,368), at the phone number listed below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Applicants respectfully petition under the provisions of 37 C.F.R. § 1.136(a) and § 1.17 for a two-month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of **\$410.00** is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit

Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Makings to Show Changes Made

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**The claims have been amended as follows:**

1. (Twice Amended) A cleaning sheet which comprises 10 to 90% by weight of thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 10 to 150 dtex and 10 to 90% by weight of cellulosic fibers, and has a [large] number of tips of said thermoplastic fibers exposed on the surface of said cleaning sheet to have capability of scouring or scraping dirt off of a soiled surface, wherein said number of tips of said thermoplastic fibers is 20-4000/cm<sup>2</sup>.

3. (Amended) The cleaning sheet according to claim 1, [which is obtained by forming an] wherein said sheet is an air-laid web comprising said thermoplastic fibers and said cellulosic fibers which have a fiber length of 0.1 to 15 mm [and then bonding], the fibers constituting said web being bonded by fusion or with a binder at their intersections.

13. (Amended) A cleaning sheet, comprising:

10 to 90% by weight of thermoplastic fibers, said thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 10 to 150 dtex, said



thermoplastic fibers having a number of tips exposed on the surface of said cleaning sheet in the range of 20 to 4000/cm<sup>2</sup>; and

10 to 90% by weight of cellulosic fibers,

wherein said thermoplastic fibers are bonded at intersections thereof.